

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] FIG. 1 depicts a conventional method for testing a non-volatile memory; and

[0018] FIG. 2 depicts a method for testing a non-volatile memory of a preferred embodiment according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0019] Before proceeding with the flow chart of the present invention, a code assigned by the client is written in a plurality of non-volatile memories with a write enabling pin (EA pin for short in the present invention). Then, the EA pin of the non-volatile memory is cut to avoid rewriting a code because of personal mistakes. The plurality of non-volatile memories without EA pin are treated as samples for testing whether the code retrieved by the controlling program of the testing machine is assigned by the client or not. The pluralities of non-volatile memories are referred to as first correlation sample or golden sample. Moreover, a plurality of non-volatile memories passing the conventional testing method, shown in FIG. 1, are provided and treated as second correlation samples for checking whether the setting of the testing machine is correct or not when it was restarted. After the first correlation sample and the second correlation sample passed through the process of the present invention, the process for testing the manufactured product is executed.

[0020] FIG. 2 depicts a preferred embodiment according to the present invention. In step 201, it depicts the beginning of the flow chart of the present invention. In step 202, the open/short test of the EA pin is executed to sort the first correlation sample and the second correlation sample. If the result of the open/short test of the EA pin is not short, step 207 is proceeded; otherwise, step 203 is proceeded. In step 203, the code test is executed which reads the code of the first correlation sample and compares it with the code retrieved by the controlling program of the testing machine. If the result is identical, step 204 is proceeded, and the code retrieved by the controlling program is correct. Otherwise, step 205 is proceeded, and the code retrieved by the controlling program is incorrect.

[0021] In step 207, an open/short test of the EA pin is executed. Only the second correlation sample is tested at step 207, since the first correlation sample had been sorted out at step 202. If the result of the open/short test of the EA pin is not short, step 208 is proceeded; otherwise, step 211 is proceeded to bin the second correction sample to binning 2. In step 208, a logic functional test of the second correlation sample is executed, if it passes, step 209 is proceeded; otherwise, step 211 is proceeded to bin the second correction sample to binning 3. In step 209, an erasable and programmable test of the second correlation sample is executed to determine whether the data of second correlation sample can be erased and new data can be rewritten second correlation sample or not. If the result of step 209 is affirmative, step 210 is proceeded; otherwise, step 211 is proceeded and the second correction sample is binned to binning 4. In step 210, a code test is executed that compares the code written in the second correlation sample with the code retrieved by the controlling program of the testing machine, so as to determine whether the read/write function of the second corre-

lation sample is correct or not. If the result of step 210 is affirmative, step 211 is proceeded and the second correlation sample is binned to binning 1; otherwise, the second correlation sample is binned to binning 5. All of the second correlation samples are binned in step 211. In step 212, the flow chart of the present invention ends. Since the second correlation sample has been verified as a correct non-volatile memory, if there are any second correlation samples that are binned to the binning 2,3,4 or 5, it means that the setting of the testing machine is incorrect and it needs to be adjusted before the process for testing the manufactured product is executed.

[0022] It should be noted that the first correlation sample with out the EA pin cannot be applied in the conventional method. Since the first correlation sample will be binned to binning 2 in the open/short test in step 102 of the conventional method, and the code test will not be executed. In addition, if the EA pin of the memory of the manufactured product falls off because of carelessness during the process of the present invention, step 203 will be proceeded. Since this non-volatile memory has not been written with any code; the result of the code test is fail. Thus, the method according to the present invention can also be applied to the mass-production stage.

[0023] The methods and features of this invention have been sufficiently described in the above examples and descriptions. It should be understood that any modifications or changes without departing from the spirits of the invention are intended to be covered in the protection scopes of the invention.

What is claimed is:

1. A method for testing a non-volatile memory, comprising the following steps:

- (a) preparing a first type correlation sample and a second type correlation sample, wherein the first type correlation sample is a non-volatile memory written with a code assigned by a client and a particular pin thereof is cut, and the second type correlation sample is a non-volatile memory which has been verified;
 - (b) after restarting a testing machine, executing an open/short test for the particular pin of the first type correlation sample and the second type correlation sample, if the particular pin is opened, proceeding to step (c), otherwise, proceeding to step (d);
 - (c) comparing the code of the first correlation sample with a code retrieved from a controlling program of the testing machine; if identical, the code retrieved by the controlling program is correct; otherwise, the code retrieved by the controlling program is incorrect; and
 - (d) executing a predetermined test for the second correlation sample, if it is affirmative, the setting of the testing machine is correct; otherwise, the setting of the testing machine is incorrect.
2. The method of claim 1, wherein the particular pin is a write enabling pin.
3. The method of claim 1, wherein the predetermined test of step (d) further comprises at least one of the following steps:
- (d1) executing an open/short test of the particular pin;;
 - (d2) executing a functional test;

- (d3) executing an erasable and programmable test; and
- (d4) executing a code test.

4. The method of claim 1, further comprising the following step:

- (e) testing the non-volatile memory after the code retrieved by the controlling program and the setting of the testing machine are correct.

5. A method for testing a non-volatile memory, the method being used to determine whether a code written in the non-volatile memory is correct or not, characterized in that the code assigned by the client is written in at least one non-volatile memory in advance, and then the write enabling pin of the non-volatile memory is cut to avoid a mistake of rewriting; after restarting a testing machine, the code written

in the non-volatile memory is read out and compare it with the code retrieved by a controlling program of the testing machine; if the comparing result is identical, the code retrieved by the controlling program of the testing machine is correct; otherwise, the code retrieved by the controlling program of the testing machine is incorrect.

6. The method of claim 5, further comprising the step of testing at least one manufactured product of the non-volatile memory which has been verified after restarting the testing machine, if it is affirmative, the setting of the testing machine is correct; otherwise, the setting of the testing machine is incorrect.

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